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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Staas & Halsey LLP  
Attn Michael D Stein  
Suite 500  
700 Eleventh Street NW  
Washington, DC 20001

EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 11/30/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/620,469

Applicant(s)

YOON ET AL.

Examiner

Martin J Angebranndt

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1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 5, 8, 11, 13 and 15, the term "family" renders the scope of coverage sought unclear as it is not clear if they must have these elements in the layer or if family members merely need to exhibit a similar physical characteristic such as crystal structure or the like.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1,2,7-9,12,14 and 17-20 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Coombs et al. '003.

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Example 2 describes a grooved substrate coated with a tantalum oxide layer, a gold layer, a tantalum oxide layer, a GeTeSe phase change recording layer, a tantalum oxide layer a reflective layer and a UV cured protective layer. (8/10-34). The use of other dielectric materials, such as silicon dioxide, titanium dioxide, zinc sulfide, aluminum nitride, tantalum oxide and mixtures therefore, is disclosed. (5/29-35) Useful materials for the reflective layer including Au, Al, Cu, or Ag are disclosed. (5/14-20)

The examiner notes that as discussed in claim 13 and 8, gold acts as a phase control layer.

6. Claims 1,2,7-10,12,14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coombs et al. '003.

The examiner holds that it would have been obvious to one skilled in the art to modify example 2 cited by using other disclosed dielectric materials in place of the tantalum oxide with a reasonable expectation of achieving comparable results based upon disclosed equivalent function.

7. Claims 1,2 and 7-20 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Tominaga et al. '517.

Example 1 uses a polycarbonate substrate, a zinc sulfide-silicon dioxide dielectric layer, a AgSbTeInV phase changing masking layer, a zinc sulfide-silicon dioxide dielectric layer, a AgSbTeInV phase changing masking layer, a zinc sulfide-silicon dioxide dielectric layer, a gold layer and a UV cured protective layer. Useful reflective layers are disclosed. (7/62+). The use of the phase change aspects of the masking layer is disclosed. (4/65-5/44).

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8. Claims 1,12 and 14-20 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Ohno et al. '783.

Example 1 has a substrate, coated a zinc sulfide-silicon dioxide dielectric layer followed by alternating layers of GeTeSb phase change recording layer and dielectric materials until a final dielectric layer is formed and a reflective layer formed on that.

9. Claim 1,2 and 7-20 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Kasami et al. 221.

The examples of figure 3 describes a polycarbonate substrate, a zinc sulfide-silicon dioxide dielectric layer, a SbSe phase change materials, a zinc sulfide-silicon dioxide dielectric layer, a UV cured spacer layer, a zinc sulfide-silicon dioxide dielectric layer, a SbTeGe recording layer, a zinc sulfide-silicon dioxide dielectric layer, a spacer layer, a zinc sulfide-silicon dioxide dielectric layer, a GeSbTe recording layer, a zinc sulfide-silicon dioxide dielectric layer, a reflective layer and a UV cured protective layer. (3/47-4/29).

10. Claim 1,2 and 7-20 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Rosen et al. 188.

The examples of figure 3 describes a polycarbonate substrate, a zinc sulfide-silicon dioxide dielectric layer, a SbTeGe recording layer, a Si thermal dissipation layer, a silicon nitride dielectric layer, a spacer layer, a zinc sulfide or silicon dioxide dielectric layer, a GeSbTe recording layer, a zinc sulfide or silicon dioxide dielectric layer, a reflective layer and a protective layer. (9/15-10/15). The use of other recording layer materials is disclosed. (11/44-59).

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11. Claims 1,2 and 7-20 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Miyauchi et al. JP 09-007224.

See figure 1 and description on page 10.

12. Claims 1,2 and 7-20 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Akahira et al. JP 03-157830.

The examples of figure 5 describes a polycarbonate substrate, a zinc sulfide dielectric layer, a SbTeGe recording layer, a zinc sulfide dielectric layer, a GeSbTe recording layer, a zinc sulfide dielectric layer, a reflective layer and a UV cured protective layer. (page 6/lower left column/example 1).

13. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Coombs et al. '003, Tominaga et al. '517, Akahira et al. JP 03-157830, Rosen et al. 188, Kasami et al. 221 or Miyauchi et al. JP 09-007224, in view of Tsukagoki et al. '014.

Tsukagoki et al. '014 discloses adding a dielectric layer between the reflective layer and the UV cured layer in phase change optical recording media. (18/35-47)

It would have been obvious to one skilled in the art to added a dielectric layer between the reflective layer and the protective layer of either Coombs et al. '003, Tominaga et al. '517, Akahira et al. JP 03-157830, Rosen et al. 188, Kasami et al. 221 or Miyauchi et al. JP 09-007224 as this is known in the art as evidenced by Tsukagoki et al. '014 with the advantage of increasing the resistance of the resultant medium to mechanical damage.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Hoshi et al. '117, Weirenga et al. '750 and Uejima et al. '999 teach optical recording media with two recording layers

JP 11-134713 teaches phase change recording layers with lower reflective layers (ie Au) as well as an upper reflective layer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 703-308-4397. The examiner can normally be reached on Mondays-Thursday and alternative Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872 9310 for regular communications and 703-872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Martin J Angebranndt  
Primary Examiner  
Art Unit 1756

November 19, 2001